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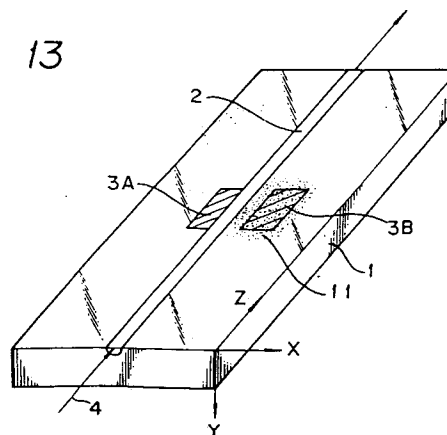
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accordance with Art.76 EPC: **0 201 684**(84) Designated Contracting States:
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25.03.92 Bulletin 92/13(71) Applicant: **NIPPON HOSO KYOKAI**
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W-8000 München 2(DE)(54) **Optical element.**

(57) In an optical element having an optical waveguide (2) and flat electrodes (3A, 3B) arranged on a substrate (1) in which an electric field is applied through the flat electrodes (3A, 3B) to the substrate (1) and the optical waveguide (2) so that a refractive index of a portion of the substrate (1) in the vicinity of the optical waveguide (2) is varied to interrupt a light beam propagating through the optical waveguide (2), the flat electrodes (3A, 3B) are disposed asymmetrically about the optical waveguide (2). Impurities (11) which alter the magnitude of a refractive index of said substrate (1) are diffused in a portion under any one of said electrodes (3A, 3B) and a portion adjacent thereto. The optical modulation, optical switching or the like can be carried out by electrically controlling the difference between refractive indices of the optical waveguide (2) and the substrate (1) in the horizontal direction, so that the nonuniformity of the refractive index of the optical waveguide (2) which causes some problems in conventional branching interference type optical modulator and directional optical coupler do not cause any problem. The optical element has a higher light extinction ratio and the output light is by far stabilized against the variation in temperature.

FIG. 13**EP 0 443 636 A3**



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EUROPEAN SEARCH REPORT

Application Number

EP 91 10 6032

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	APPLIED PHYSICS LETTERS. vol. 45, no. 8, October 1984, NEW YORK US pages 840 - 842; P.R. ASHLEY ET AL.: 'Improved mode extinction modulator using a Ti in-diffused LiNbO3 channel waveguide' * the whole document ** -- --	1	G 02 F 1/035
A,D	APPLIED PHYSICS LETTERS. vol. 35, no. 3, August 1979, NEW YORK US pages 256 - 258; A. NEYER ET AL.: 'High-speed cutoff modulator using a Ti-indiffused LiNbO3 channel waveguide' * the whole document ** -- --	1	
A	IEEE JOURNAL OF QUANTUM ELECTRONICS. vol. 18, no. 3, March 1982, NEW YORK US pages 393 - 398; D. MARCUSE: 'Optimal electrode design for integrated optics modulators' * page 396, right column, line 11 - page 397, left column, line 20 *** figures 1B,8-9 ** -- -- -- --	1-5	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			G 02 F
Place of search		Date of completion of search	Examiner
The Hague		13 January 92	IASEVOLI R.
CATEGORY OF CITED DOCUMENTS			
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